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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/752,721

01/08/2004

Eric A. Merz

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10/18/2005

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EXAMINER

MARTIN, LAURA E

ART UNIT

PAPER NUMBER

2853

DATE MAILED: 10/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/752,721

Applicant(s)

MERZ ET AL.

Examiner

Laura E. Martin

Art Unit

2853

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 08 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 1/08/04.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 5, 7-11, 15, 16, 18-20, and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Kupcho et al. (US 5670995).

As per claims 1 and 11, Kupcho et al. teaches a drive assembly for a printhead and a printer having an endless loop drive path comprising a drive assembly including: at least two spaced rollers (120 a/b and 122 a/b), at least one of which is a driven roller (120 a/b); an endless drive belt loop (118 a/b) connected between at least two spaced rollers for rotation thereabout to define an endless loop drive path (C6, L51); a drive mechanism (40) that drives the endless drive belt loop in at least a first direction; a printhead assembly (116 a/b) including at least one printhead and a carriage (112/114) operably connected to the endless drive belt loop for movement therewith; a guide assembly (126 a/b) that constrains movement of the printhead assembly, the guide assembly being configured to allow movement of the printhead around both linear and arcuate portions of the endless loop drive path; a controller (Figure 5) that controls the drive assembly to traverse the printhead assembly over at least one-half the length of the endless drive belt loop to advance the printhead across a linear print zone and an

arcuate non print zone (past rollers) with a predetermined drive profile; and an indexing mechanism for advancing a recording medium past the printhead (C5, L27+).

As per claims 5 and 15, Kupcho et al. teaches the drive assembly and printer wherein the endless loop drive path consists of two linear print zones (Figure 1 - paper) and two arcuate non-print zones defined by one-half the circumference of the spaced rollers (at end of belt), the printhead having a print swath of a width S (Figure 2, 12) measured transverse to the first direction, and the two linear print zones being separated by spacing  $S_N$ , where N is an integer multiple of S (Figure 3, distance between 126 a and 126 b).

As per claims 7 and 16, Kupcho et al. teaches the drive assembly and printer (116 a/b) wherein at least one printhead includes at least two printheads diametrically opposed to one another on the endless loop drive path.

As per claims 8 and 19, Kupcho et al. teaches the drive assembly and printer constraining movements of the printhead assembly in at least the linear print zone (126 a/b).

As per claims 9 and 20, Kupcho et al. teaches the drive assembly and printer wherein the controller controls the drive mechanism to also operate in a second direction opposite the first direction (C5, L60-64).

As per claims 10 and 18, Kupcho et al. teaches a printer and drive assembly with an indexing mechanism (16) to advance a recording medium past a printhead, in a path in a direction transverse to the first direction and through a center of the endless loop

drive path and the at least two printheads each face toward the recording medium so as to be capable of simultaneous both side printing (Figure 5).

As per claim 22, Kupcho et al. teaches a drive assembly for a printhead and a printer having an endless loop drive path comprising a drive assembly including: at least two spaced rollers (120 a/b and 122 a/b), at least one of which is a driven roller (120 a/b); an endless drive belt loop (118 a/b) connected between at least two spaced rollers for rotation thereabout to define an endless loop drive path (C6, L51); a drive mechanism (40) that drives the endless drive belt loop in at least a first direction; a printhead assembly (116 a/b) including at least two printheads and carriages (112/114) operably connected to the endless drive belt loop for movement therewith, the at least two printheads being diametrically opposed to one another on the endless loop drive path; a guide assembly (126 a/b) that constrains movement of the printhead assembly, the guide assembly being configured to allow movement of the printhead around both linear and arcuate portions of the endless loop drive path; an indexing mechanism for advancing a recording medium past the printhead (C5, L27+).and a controller (Figure 5) that controls the drive assembly to traverse the printhead assembly over at least one-half the length of the endless drive belt loop to advance the printhead across a linear print zone and an arcuate non print zone (past rollers) with a predetermined drive profile, wherein the at least two printheads each face toward the recording medium so as to be capable of simultaneous both side printing (Figure 3).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kupcho et al. (US 5670995) in view of Bradford (US 4804285).

Kupcho et al. teaches the drive assembly and printer of claims 1 and 11; however, it does not disclose the controller controlling the drive assembly to rotate the printhead assembly in a unidirectional endless loop mode in which at least one full revolution of the endless loop drive path is traversed by the printhead assembly.

Bradford discloses the controller controlling the drive assembly to rotate the printhead assembly in a unidirectional endless loop mode in which at least one full revolution of the endless loop drive path is traversed by the printhead assembly (C3, L31-35).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the disclosures of Kupcho et al. and Bradford to more easily maneuver the drive assembly and printer.

Claims 3, 4, 13, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kupcho et al. (US 5670995) and Bradford (US 4804285), in further view of Epstein (US 5129746).

Kupcho et al. and Bradford teach the drive assembly and printer of claims 2 and 12; however, neither discloses a controller controlling the drive assembly to advance the

printhead assembly across the linear print zone and arcuate non-print zone at a substantially constant velocity.

Epstein discloses a controller controlling the drive assembly to advance the printhead assembly across the linear print zone and arcuate non-print zone at a substantially constant velocity (C3, L18-20).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the inventions of Kupcho et al. and Bradford with that of Epstein because running the printhead at a constant velocity will wear less on the machine.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kupcho et al. (US 5670995) in view of Goodwin et al. (US 4980009).

Kupcho et al. teaches the drive assembly of claim 5; however, it does not teach the spaced rollers having a radius  $R$  of between 15 and 50 mm to define a turnaround zone of length  $\pi \cdot R$ .

Goodwin et al. teaches the spaced rollers having a radius  $R$  of between 15 and 50 mm to define a turnaround zone of length  $\pi \cdot R$  (C4, L25+).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the disclosure of Kupcho et al. and Goodwin et al. to create rollers small enough to fit within a printer.

Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kupcho et al. (US 5670995) in view of Menendez et al. (US 2003/0227511).

printhead assembly across the linear print zone and arcuate non-print zone at a substantially constant velocity.

Epstein discloses a controller controlling the drive assembly to advance the printhead assembly across the linear print zone and arcuate non-print zone at a substantially constant velocity (C3, L18-20).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the inventions of Kupcho et al. and Bradford with that of Epstein because running the printhead at a constant velocity will wear less on the machine.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kupcho et al. (US 5670995) in view of Goodwin et al. (US 4980009).

Kupcho et al. teaches the drive assembly of claim 5; however, it does not teach the spaced rollers having a radius  $R$  of between 15 and 50 mm to define a turnaround zone of length  $\pi \cdot R$ .

Goodwin et al. teaches the spaced rollers having a radius  $R$  of between 15 and 50 mm to define a turnaround zone of length  $\pi \cdot R$  (C4, L25+).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the disclosure of Kupcho et al. and Goodwin et al. to create rollers small enough to fit within a printer.

Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kupcho et al. (US 5670995) in view of Menendez et al. (US 2003/0227511).

Kupcho et al. teaches the printer according to claim 11, however, it does not teach the at least two printheads operating simultaneously to provide two offset print swaths separated by a predefined spacing (P11).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the disclosures of Kupcho et al. and Menendez et al. to test for misalignments.

Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kupcho et al. (US 5670995) in view of McCue, Jr. et al. (US 6325503).

Kupcho et al. teaches the printer according to claim 11; however, it does not teach a duplexer that reverses an orientation of the recording medium so that both sides of the recording medium can be printed.

Menendez et al. teaches a duplexer that reverses an orientation of the recording medium so that both sides of the recording medium can be printed.

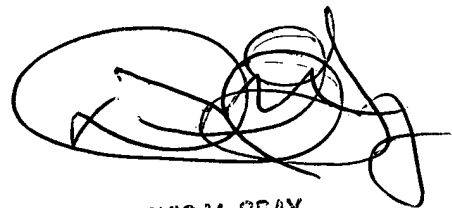
It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the disclosures of Kupcho et al. and McCue, Jr. et al. to easily print on both sides of paper.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura E. Martin whose telephone number is (571) 272-2160. The examiner can normally be reached on Monday - Friday, 7:00 - 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David M. Gray can be reached on (571) 272-2119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Laura E. Martin



DAVID M. GRAY  
PRIMARY EXAMINER